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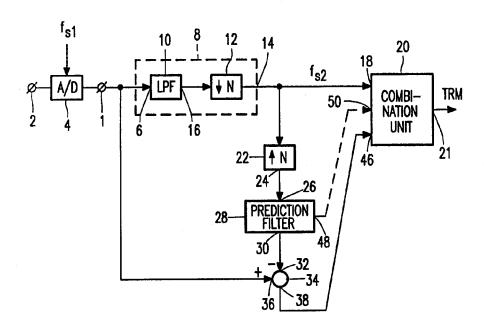
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(54) Title: TRANSMISSION OF A DIGITAL INFORMATION SIGNAL HAVING A SPECIFIC FIRST SAMPLING FREQUENCY



#### (57) Abstract

A transmitter is disclosed for transmitting a digital information signal having a specific first sampling frequency  $(f_{s1})$  via a transmission medium. The digital information signal is lowpass filtered (10) and down sampled (12) so as to obtain a low frequency component of the digital information signal. This signal is transmitted via the transmission medium (TRM). Further the low frequency component is upsampled (22) and filtered (28) and subsequently subtracted (34) from the original digital information signal. The difference signal thus obtained is also transmitted.

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# INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER		
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A US 5432511 A (A. SADJADIAN ET A (11.07.95), abstract	L), 11 July 1995	1-24
A US 5499273 A (A.C.S. KULL ET AL (12.03.96), abstract	), 12 March 1996	1-24
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## INTERNATIONAL SEARCH REPORT

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Patent document cited in search repor		iblication date	Patent family member(s)			Publication date
US 5432511	A 11	1/07/95		2267192 6260887		24/11/93 16/09/94
US 5499273	A 12	2/03/96	FR GB GB	5065196 2734107 2300790 9609163 8317009	A A D	21/11/96 15/11/96 13/11/96 00/00/00 29/11/96

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